



## SEQUENCE LISTING

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STAHN, RENATE  
KARSTEN, UWE

<120> RECOGNITION MOLECULES FOR THE TREATMENT AND DETECTION  
OF TUMORS

<130> VOSSM-0001

<140> 10/540,479

<141> 2005-06-23

<150> PCT/DE04/00132

<151> 2004-01-23

<150> DE 10303664.4

<151> 2003-01-23

<160> 99

<170> PatentIn Ver. 3.5

<210> 1

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 1

Asp Ala Trp Met Asp  
1 5

<210> 2

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 2

Asn Tyr Trp Met Asn  
1 5

<210> 3

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 3

Glu	Ile	Arg	Ser	Lys	Ala	Asn	Asn	His	Ala	Thr	Tyr	Tyr	Ala	Glu	Ser
1				5					10					15	

Val Lys Gly

<210> 4

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 4

Glu	Ile	Arg	Leu	Lys	Ser	Asn	Asn	Tyr	Thr	Thr	His	Tyr	Ala	Glu	Ser
1				5					10					15	

Val Lys Gly

<210> 5

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 5

Gly	Gly	Tyr	Gly	Phe	Asp	Tyr
1				5		

<210> 6

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 6

His	Tyr	Tyr	Phe	Asp	Tyr
1				5	

<210> 7  
<211> 16  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 7  
Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu  
1 5 10 15

<210> 8  
<211> 16  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 8  
Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe  
1 5 10 15

<210> 9  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 9  
Lys Val Ser Asn Arg Phe Ser  
1 5

<210> 10  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 10  
Gln Met Ser Asn Leu Ala Ser  
1 5

<210> 11  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 11  
Phe Gln Gly Ser His Val Pro Leu Thr  
1 5

<210> 12  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 12  
Ala Gln Asn Leu Glu Leu Pro Pro Thr  
1 5

<210> 13  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 13  
Asn Tyr Trp Val Asn  
1 5

<210> 14  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 14  
Asn Tyr Trp Ile Asn  
1 5

<210> 15  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 15  
Asn Tyr Trp Tyr Asn  
1 5

<210> 16  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 16  
Asn Tyr Trp Trp Asn  
1 5

<210> 17  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 17  
Asp Ala Trp Ile Asp  
1 5

<210> 18  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 18  
Asp Ala Trp Val Asp  
1 5

<210> 19  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 19  
 Asp Ala Trp Tyr Asp  
       1                  5

<210> 20  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 20  
 Asp Ala Trp Trp Asp  
       1                  5

<210> 21  
 <211> 19  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 21  
 Glu Ile Arg Ser Lys Ala Asn Asn Tyr Ala Thr Tyr Tyr Ala Glu Ser  
       1                  5                  10                  15

Val Lys Gly

<210> 22  
 <211> 19  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 22  
 Glu Ile Arg Leu Lys Ser Asn Lys Tyr Thr Thr His Tyr Ala Glu Ser  
       1                  5                  10                  15

Val Lys Gly

<210> 23  
 <211> 19  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 23  
 Glu Ile Arg Leu Lys Ser Asn Ser Tyr Thr Thr His Tyr Ala Glu Ser  
     1                    5                    10                    15

Val Lys Gly

<210> 24  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 24  
 Arg Pro Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu  
     1                    5                    10                    15

<210> 25  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 25  
 Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Phe Glu  
     1                    5                    10                    15

<210> 26  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 26

Arg	Pro	Ser	Gln	Ser	Ile	Val	His	Ser	Asn	Gly	Asn	Thr	Tyr	Phe	Glu
1				5					10					15	

<210> 27

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 27

Arg	Pro	Ser	Lys	Ser	Leu	Leu	His	Ser	Asn	Gly	Ile	Thr	Tyr	Phe	Phe
1				5					10					15	

<210> 28

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 28

Arg	Ser	Ser	Lys	Ser	Leu	Leu	His	Ser	Asn	Gly	Ile	Thr	Tyr	Leu	Phe
1				5					10					15	

<210> 29

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 29

Arg	Pro	Ser	Lys	Ser	Leu	Leu	His	Ser	Asn	Gly	Ile	Thr	Tyr	Leu	Phe
1				5					10					15	

<210> 30

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide



<400> 30

Phe Gln Gly Ser His Pro Pro Leu Thr  
1 5

<210> 31

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 31

Ala Gln Asn Leu Glu Pro Pro Pro Thr  
1 5

<210> 32

<211> 118

<212> PRT

<213> Mus musculus

<400> 32

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
100 105 110

Thr Leu Thr Val Ser Ser  
115

<210> 33

<211> 117

<212> PRT

<213> Mus musculus

<400> 33

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
                   20                  25                  30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                   35                  40                  45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
                   50                  55                  60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
                   65                  70                  75                  80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
                   85                  90                  95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
                   100                  105                  110  
 Leu Thr Val Ser Ser  
                   115

<210> 34  
 <211> 114  
 <212> PRT  
 <213> Mus musculus

<400> 34  
 Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly  
                   1                  5                  10                  15  
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser  
                   20                  25                  30  
 Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser  
                   35                  40                  45  
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro  
                   50                  55                  60  
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
                   65                  70                  75                  80  
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly  
                   85                  90                  95  
 Ser His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys  
                   100                  105                  110  
 Arg Ala

<210> 35  
 <211> 114  
 <212> PRT  
 <213> Mus musculus

&lt;400&gt; 35

Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly  
 1 5 10 15

Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser  
 20 25 30

Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser  
 35 40 45

Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro  
 50 55 60

Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile  
 65 70 75 80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn  
 85 90 95

Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys  
 100 105 110

Arg Ala

&lt;210&gt; 36

&lt;211&gt; 275

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

&lt;400&gt; 36

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110

Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125  
 Gly Gly Ser Gly Gly Ser Ala Arg Asp Ile Val Leu Thr Gln Thr Pro  
 130 135 140  
 Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg  
 145 150 155 160  
 Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp  
 165 170 175  
 Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val  
 180 185 190  
 Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser  
 195 200 205  
 Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu  
 210 215 220  
 Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly  
 225 230 235 240  
 Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His  
 245 250 255  
 His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn  
 260 265 270  
 Gly Ala Ala  
 275

<210> 37  
 <211> 266  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 37  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30  
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
                     85                    90                    95  
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
                     100                    105                    110  
 Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Ser Gly Ser Ser Ala Asp  
                     115                    120                    125  
 Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp  
                     130                    135                    140  
 Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn  
                     145                    150                    155                    160  
 Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro  
                     165                    170                    175  
 Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp  
                     180                    185                    190  
 Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser  
                     195                    200                    205  
 Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser  
                     210                    215                    220  
 His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg  
                     225                    230                    235                    240  
 Ala Ala Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu  
                     245                    250                    255  
 Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala  
                     260                    265

<210> 38

<211> 265

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 38

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                    5                    10                    15  
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
                     20                    25                    30  
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                     35                    40                    45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80  
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110  
 Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Ser Ser Ala Asp Ile  
 115 120 125  
 Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln  
 130 135 140  
 Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly  
 145 150 155 160  
 Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys  
 165 170 175  
 Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg  
 180 185 190  
 Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg  
 195 200 205  
 Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His  
 210 215 220  
 Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala  
 225 230 235 240  
 Ala Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile  
 245 250 255  
 Ser Glu Glu Asp Leu Asn Gly Ala Ala  
 260 265

<210> 39  
 <211> 264  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 39  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                   35                                  40                                  45  
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
           50  55                                  60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
   65  70                                  75                                  80  
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
                                   85                                  90                                  95  
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
                   100                                  105                                  110  
 Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Ser Ser Ala Asp Ile Val  
           115                                  120                                  125  
 Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala  
   130                                  135                                  140  
 Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn  
 145                                  150                                  155                                  160  
 Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu  
                   165                                  170                                  175  
 Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe  
                   180                                  185                                  190  
 Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val  
           195                                  200                                  205  
 Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val  
   210                                  215                                  220  
 Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala  
 225                                  230                                  235                                  240  
 Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser  
                   245                                  250                                  255  
 Glu Glu Asp Leu Asn Gly Ala Ala  
                   260

<210> 40

<211> 263

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

&lt;400&gt; 40

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110

Thr Leu Thr Val Ser Ser Ala Ser Ser Ser Ser Ala Asp Ile Val Leu  
 115 120 125

Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser  
 130 135 140

Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr  
 145 150 155 160

Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu  
 165 170 175

Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser  
 180 185 190

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu  
 195 200 205

Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro  
 210 215 220

Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala  
 225 230 235 240

His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu  
 245 250 255

Glu Asp Leu Asn Gly Ala Ala  
 260

&lt;210&gt; 41

&lt;211&gt; 262

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence



&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

&lt;400&gt; 41

Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly	1	5	10	15
Ser	Met	Lys	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asp	Ala	20	25	30	
Trp	Met	Asp	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val	35	40	45	
Ala	Glu	Ile	Arg	Ser	Lys	Ala	Asn	Asn	His	Ala	Thr	Tyr	Tyr	Ala	Glu	50	55	60	
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Val	Ser	Lys	Ser	Ser	65	70	75	80
Val	Tyr	Leu	Gln	Met	Asn	Asn	Leu	Arg	Ala	Glu	Asp	Thr	Gly	Ile	Tyr	85	90	95	
Tyr	Cys	Thr	Arg	Gly	Gly	Tyr	Gly	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	100	105	110	
Thr	Leu	Thr	Val	Ser	Ser	Ala	Ser	Ser	Ser	Ala	Asp	Ile	Val	Leu	Thr	115	120	125	
Gln	Thr	Pro	Leu	Ser	Leu	Pro	Val	Ser	Leu	Gly	Asp	Gln	Ala	Ser	Ile	130	135	140	
Ser	Cys	Arg	Ser	Ser	Gln	Ser	Ile	Val	His	Ser	Asn	Gly	Asn	Thr	Tyr	145	150	155	160
Leu	Glu	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Lys	Leu	Leu	Ile	165	170	175	
Tyr	Lys	Val	Ser	Asn	Arg	Phe	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	180	185	190	
Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile	Ser	Arg	Val	Glu	Ala	195	200	205	
Glu	Asp	Leu	Gly	Val	Tyr	Tyr	Cys	Phe	Gln	Gly	Ser	His	Val	Pro	Leu	210	215	220	
Thr	Phe	Gly	Asp	Gly	Thr	Lys	Leu	Glu	Leu	Lys	Arg	Ala	Ala	Ala	His	225	230	235	240
His	His	His	His	His	Gly	Ala	Ala	Glu	Gln	Lys	Leu	Ile	Ser	Glu	Glu	245	250	255	
Asp	Leu	Asn	Gly	Ala	Ala	260													

<210> 42  
 <211> 261  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 42

Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly		
1				5					10					15			
Ser	Met	Lys	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asp	Ala		
			20					25					30				
Trp	Met	Asp	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val		
		35					40					45					
Ala	Glu	Ile	Arg	Ser	Lys	Ala	Asn	Asn	His	Ala	Thr	Tyr	Tyr	Ala	Glu		
	50					55					60						
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Val	Ser	Lys	Ser	Ser		
65					70					75					80		
Val	Tyr	Leu	Gln	Met	Asn	Asn	Leu	Arg	Ala	Glu	Asp	Thr	Gly	Ile	Tyr		
				85					90					95			
Tyr	Cys	Thr	Arg	Gly	Gly	Tyr	Gly	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr		
			100					105					110				
Thr	Leu	Thr	Val	Ser	Ser	Ala	Ser	Ser	Ala	Asp	Ile	Val	Leu	Thr	Gln		
			115				120					125					
Thr	Pro	Leu	Ser	Leu	Pro	Val	Ser	Leu	Gly	Asp	Gln	Ala	Ser	Ile	Ser		
	130					135					140						
Cys	Arg	Ser	Ser	Gln	Ser	Ile	Val	His	Ser	Asn	Gly	Asn	Thr	Tyr	Leu		
145					150					155					160		
Glu	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Lys	Leu	Leu	Ile	Tyr		
			165						170					175			
Lys	Val	Ser	Asn	Arg	Phe	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser		
			180					185					190				
Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Lys	Ile	Ser	Arg	Val	Glu	Ala	Glu		
	195						200					205					
Asp	Leu	Gly	Val	Tyr	Tyr	Cys	Phe	Gln	Gly	Ser	His	Val	Pro	Leu	Thr		
	210					215					220						
Phe	Gly	Asp	Gly	Thr	Lys	Leu	Glu	Leu	Lys	Arg	Ala	Ala	Ala	His	His		
225					230					235					240		
His	His	His	His	Gly	Ala	Ala	Glu	Gln	Lys	Leu	Ile	Ser	Glu	Glu	Asp		
				245					250					255			

Leu Asn Gly Ala Ala  
260

<210> 43  
<211> 260  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 43  
Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15  
Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
20 25 30  
Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
35 40 45  
Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
50 55 60  
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
65 70 75 80  
Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
85 90 95  
Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
100 105 110  
Thr Leu Thr Val Ser Ser Ala Ser Ala Asp Ile Val Leu Thr Gln Thr  
115 120 125  
Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys  
130 135 140  
Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu  
145 150 155 160  
Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys  
165 170 175  
Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly  
180 185 190  
Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp  
195 200 205  
Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe  
210 215 220  
Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His  
225 230 235 240

His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu  
                   245                                  250                                  255

Asn Gly Ala Ala  
                   260

<210> 44

<211> 259

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
           single chain Fv format

<400> 44

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                                  5                                  10                                  15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
                   20                                  25                                  30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                   35                                  40                                  45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
                   50                                  55                                  60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
   65                                  70                                  75                                  80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
                                   85                                  90                                  95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
                   100                                  105                                  110

Thr Leu Thr Val Ser Ser Ala Ala Asp Ile Val Leu Thr Gln Thr Pro  
                   115                                  120                                  125

Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg  
                   130                                  135                                  140

Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp  
   145                                  150                                  155                                  160

Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val  
                   165                                  170                                  175

Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser  
                   180                                  185                                  190

Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu  
                   195                                  200                                  205

Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly  
 210 215 220

Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His  
 225 230 235 240

His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn  
 245 250 255

Gly Ala Ala

<210> 45  
 <211> 255  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 45  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110

Thr Leu Thr Val Ser Ser Ala Asp Ile Val Leu Thr Gln Thr Pro Leu  
 115 120 125

Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser  
 130 135 140

Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp Tyr  
 145 150 155 160

Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val Ser  
 165 170 175

Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly  
 180 185 190

Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly  
 195 200 205

Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly Asp  
 210 215 220

Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His His  
 225 230 235 240

His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Val His Gln  
 245 250 255

<210> 46

<211> 257

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 46

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110

Thr Leu Thr Val Ser Ser Asp Ile Val Leu Thr Gln Thr Pro Leu Ser  
 115 120 125

Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser  
 130 135 140

Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu  
 145 150 155 160

Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn  
 165 170 175

Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr  
                   180                                  185                                  190

Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Val  
                   195                                  200                                  205

Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly Asp Gly  
           210  215                                  220

Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His His His  
 225  230                                  235                                  240

Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala  
                                   245                                  250                                  255

Ala

<210> 47

<211> 256

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
           single chain Fv format

<400> 47

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                                  5                                  10                                  15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
                   20                                  25                                  30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                   35                                  40                                  45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
   50                                  55                                  60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
   65                                  70                                  75                                  80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
                   85                                  90                                  95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
                   100                                  105                                  110

Thr Leu Thr Val Ser Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu  
                   115                                  120                                  125

Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln  
   130                                  135                                  140

Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln  
   145                                  150                                  155                                  160

Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg  
                                   165                                  170                                  175

Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp  
                                   180                                  185                                  190

Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr  
                                   195                                  200                                  205

Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly Asp Gly Thr  
                                   210                                  215                                  220

Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His His His Gly  
                                   225                                  230                                  235                                  240

Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala  
                                   245                                  250                                  255

<210> 48

<211> 274

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
                                   single chain Fv format

<400> 48

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                                  5                                  10                                  15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
                                   20                                  25                                  30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                                   35                                  40                                  45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
                                   50                                  55                                  60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
   65                                  70                                  75                                  80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
                                   85                                  90                                  95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
                                   100                                  105                                  110

Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly  
                                   115                                  120                                  125

Gly Ser Gly Gly Ser Ala Arg Asp Ile Val Met Thr Gln Ala Ala Phe  
                                   130                                  135                                  140



Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys Arg Ser  
 145 150 155 160  
 Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe Trp Tyr  
 165 170 175  
 Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln Met Ser  
 180 185 190  
 Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser Gly  
 195 200 205  
 Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val Gly  
 210 215 220  
 Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly  
 225 230 235 240  
 Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His His His His His  
 245 250 255  
 His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly  
 260 265 270

Ala Ala

<210> 49

<211> 265

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 49

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110

Leu	Thr	Val	Ser	Ser	Ala	Ser	Ser	Gly	Ser	Gly	Ser	Ser	Ala	Asp	Ile
		115						120				125			
Val	Met	Thr	Gln	Ala	Ala	Phe	Ser	Asn	Pro	Val	Thr	Leu	Gly	Thr	Ser
	130					135					140				
Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Lys	Ser	Leu	Leu	His	Ser	Asn	Gly
145					150					155					160
Ile	Thr	Tyr	Phe	Phe	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Leu	Ser	Pro	Gln
				165					170					175	
Leu	Leu	Ile	Tyr	Gln	Met	Ser	Asn	Leu	Ala	Ser	Gly	Val	Pro	Asp	Arg
			180					185					190		
Phe	Ser	Ser	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Arg	Ile	Ser	Arg
		195					200					205			
Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr	Cys	Ala	Gln	Asn	Leu	Glu
	210					215					220				
Leu	Pro	Pro	Thr	Phe	Gly	Gly	Gly	Thr	Lys	Leu	Glu	Ile	Lys	Arg	Ala
225					230					235					240
Ala	Ala	His	His	His	His	His	His	Gly	Ala	Ala	Glu	Gln	Lys	Leu	Ile
				245					250					255	
Ser	Glu	Glu	Asp	Leu	Asn	Gly	Ala	Ala							
			260					265							

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<210> 50
<211> 264
<212> PRT
<213> Artificial Sequence
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<220>  
<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 50															
Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly
1				5					10					15	
Ser	Met	Lys	Leu	Ser	Cys	Val	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asn	Tyr
			20					25					30		
Trp	Met	Asn	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val
		35					40					45			
Ala	Glu	Ile	Arg	Leu	Lys	Ser	Asn	Asn	Tyr	Thr	Thr	His	Tyr	Ala	Glu
	50					55					60				
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asp	Ser	Lys	Ser	Ser
65					70					75					80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
                     85                    90                    95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
                     100                    105                    110  
 Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Ser Ser Ala Asp Ile Val  
                     115                    120                    125  
 Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala  
                     130                    135                    140  
 Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile  
                     145                    150                    155                    160  
 Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu  
                     165                    170                    175  
 Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe  
                     180                    185                    190  
 Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val  
                     195                    200                    205  
 Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu  
                     210                    215                    220  
 Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala  
                     225                    230                    235                    240  
 Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser  
                     245                    250                    255  
 Glu Glu Asp Leu Asn Gly Ala Ala  
                     260

<210> 51

<211> 263

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 51

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                    5                    10                    15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
                     20                    25                    30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                     35                    40                    45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
                     50                    55                    60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Leu Thr Val Ser Ser Ala Ser Ser Gly Ser Ser Ala Asp Ile Val Met  
 115 120 125  
 Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser  
 130 135 140  
 Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr  
 145 150 155 160  
 Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu  
 165 170 175  
 Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser  
 180 185 190  
 Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu  
 195 200 205  
 Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro  
 210 215 220  
 Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala  
 225 230 235 240  
 His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu  
 245 250 255  
 Glu Asp Leu Asn Gly Ala Ala  
 260

<210> 52

<211> 262

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 52

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                   35                                  40                                  45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
                   50                                  55                                  60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
                   65                                  70                                  75                                  80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
                                   85                                  90                                  95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
                                  100                                 105                                 110  
 Leu Thr Val Ser Ser Ala Ser Ser Ser Ser Ala Asp Ile Val Met Thr  
                   115                                 120                                 125  
 Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile  
                   130                                 135                                 140  
 Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr  
                   145                                 150                                 155                                 160  
 Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile  
                                  165                                 170                                 175  
 Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser  
                                  180                                 185                                 190  
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala  
                   195                                 200                                 205  
 Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro  
                   210                                 215                                 220  
 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His  
                   225                                 230                                 235                                 240  
 His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu  
                                  245                                 250                                 255  
 Asp Leu Asn Gly Ala Ala  
                                  260

<210> 53

<211> 261

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

<400> 53

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
           1                                  5                                  10                                  15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
                   20                  25                  30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                   35                  40                  45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
                   50                  55                  60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
                   65                  70                  75                  80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
                   85                  90                  95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
                   100                  105                  110  
 Leu Thr Val Ser Ser Ala Ser Ser Ser Ala Asp Ile Val Met Thr Gln  
                   115                  120                  125  
 Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser  
                   130                  135                  140  
 Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe  
                   145                  150                  155                  160  
 Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr  
                   165                  170                  175  
 Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser  
                   180                  185                  190  
 Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu  
                   195                  200                  205  
 Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr  
                   210                  215                  220  
 Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His His  
                   225                  230                  235                  240  
 His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp  
                   245                  250                  255  
 Leu Asn Gly Ala Ala  
                   260

<210> 54

<211> 260

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

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<210> 55
<211> 259
<212> PRT
<213> Artificial Sequence
```

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
single chain Fv format

&lt;400&gt; 55

Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly
1				5					10					15	

Ser	Met	Lys	Leu	Ser	Cys	Val	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asn	Tyr
			20					25					30		

Trp	Met	Asn	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val
		35					40					45			

Ala	Glu	Ile	Arg	Leu	Lys	Ser	Asn	Asn	Tyr	Thr	Thr	His	Tyr	Ala	Glu
	50					55					60				

Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asp	Ser	Lys	Ser	Ser
65					70					75					80

Val	Ser	Leu	Gln	Met	Asn	Asn	Leu	Arg	Val	Glu	Asp	Thr	Gly	Ile	Tyr
				85					90					95	

Tyr	Cys	Thr	Arg	His	Tyr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Thr
			100					105					110		

Leu	Thr	Val	Ser	Ser	Ala	Ser	Ala	Asp	Ile	Val	Met	Thr	Gln	Ala	Ala
		115					120					125			

Phe	Ser	Asn	Pro	Val	Thr	Leu	Gly	Thr	Ser	Ala	Ser	Ile	Ser	Cys	Arg
	130						135				140				

Ser	Ser	Lys	Ser	Leu	Leu	His	Ser	Asn	Gly	Ile	Thr	Tyr	Phe	Phe	Trp
145					150					155					160

Tyr	Leu	Gln	Lys	Pro	Gly	Leu	Ser	Pro	Gln	Leu	Leu	Ile	Tyr	Gln	Met
				165					170					175	

Ser	Asn	Leu	Ala	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Ser	Ser	Gly	Ser
			180					185					190		

Gly	Thr	Asp	Phe	Thr	Leu	Arg	Ile	Ser	Arg	Val	Glu	Ala	Glu	Asp	Val
		195					200					205			

Gly	Val	Tyr	Tyr	Cys	Ala	Gln	Asn	Leu	Glu	Leu	Pro	Pro	Thr	Phe	Gly
	210					215					220				

Gly	Gly	Thr	Lys	Leu	Glu	Ile	Lys	Arg	Ala	Ala	Ala	His	His	His	His
225					230					235					240

His	His	Gly	Ala	Ala	Glu	Gln	Lys	Leu	Ile	Ser	Glu	Glu	Asp	Leu	Asn
				245					250					255	

Gly Ala Ala



<210> 56  
 <211> 258  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 56  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Leu Thr Val Ser Ser Ala Ala Asp Ile Val Met Thr Gln Ala Ala Phe  
 115 120 125  
 Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys Arg Ser  
 130 135 140  
 Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe Trp Tyr  
 145 150 155 160  
 Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln Met Ser  
 165 170 175  
 Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser Gly  
 180 185 190  
 Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val Gly  
 195 200 205  
 Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly  
 210 215 220  
 Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His His His His His  
 225 230 235 240  
 His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly  
 245 250 255

<400> 57															
Glu 1	Val	Lys	Leu	Val 5	Glu	Ser	Gly	Gly	Gly 10	Leu	Val	Gln	Pro	Gly 15	Gly
Ser	Met	Lys	Leu 20	Ser	Cys	Val	Ala	Ser 25	Gly	Phe	Thr	Phe	Ser 30	Asn	Tyr
Trp	Met	Asn 35	Trp	Val	Arg	Gln	Ser 40	Pro	Glu	Lys	Gly	Leu 45	Glu	Trp	Val
Ala	Glu 50	Ile	Arg	Leu	Lys	Ser 55	Asn	Asn	Tyr	Thr	Thr 60	His	Tyr	Ala	Glu
Ser 65	Val	Lys	Gly	Arg	Phe 70	Thr	Ile	Ser	Arg	Asp 75	Asp	Ser	Lys	Ser	Ser 80
Val	Ser	Leu	Gln	Met 85	Asn	Asn	Leu	Arg	Val 90	Glu	Asp	Thr	Gly	Ile 95	Tyr
Tyr	Cys	Thr	Arg 100	His	Tyr	Tyr	Phe	Asp 105	Tyr	Trp	Gly	Gln	Gly 110	Thr	Thr
Leu	Thr 115	Val	Ser	Ser	Ala	Asp	Ile 120	Val	Met	Thr	Gln	Ala 125	Ala	Phe	Ser
Asn 130	Pro	Val	Thr	Leu	Gly	Thr 135	Ser	Ala	Ser	Ile	Ser 140	Cys	Arg	Ser	Ser
Lys 145	Ser	Leu	Leu	His	Ser 150	Asn	Gly	Ile	Thr	Tyr 155	Phe	Phe	Trp	Tyr	Leu 160
Gln	Lys	Pro	Gly	Leu 165	Ser	Pro	Gln	Leu	Leu 170	Ile	Tyr	Gln	Met	Ser 175	Asn
Leu	Ala	Ser	Gly 180	Val	Pro	Asp	Arg	Phe 185	Ser	Ser	Ser	Gly	Ser 190	Gly	Thr
Asp	Phe	Thr 195	Leu	Arg	Ile	Ser	Arg 200	Val	Glu	Ala	Glu	Asp 205	Val	Gly	Val
Tyr	Tyr 210	Cys	Ala	Gln	Asn	Leu 215	Glu	Leu	Pro	Pro	Thr 220	Phe	Gly	Gly	Gly
Thr 225	Lys	Leu	Glu	Ile	Lys 230	Arg	Ala	Ala	Ala	His 235	His	His	His	His	His 240

Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala  
                   245                                  250                                  255

Ala

<210> 58

<211> 256

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
           single chain Fv format

<400> 58

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                                  5                                  10                                  15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
                   20                                  25                                  30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                   35                                  40                                  45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
                   50                                  55                                  60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
   65                                  70                                  75                                  80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
                                   85                                  90                                  95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
                   100                                  105                                  110

Leu Thr Val Ser Ser Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn  
                   115                                  120                                  125

Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys  
                   130                                  135                                  140

Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln  
   145                                  150                                  155                                  160

Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu  
                                   165                                  170                                  175

Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp  
                   180                                  185                                  190

Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr  
                   195                                  200                                  205

Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr  
 210 215 220

Lys Leu Glu Ile Lys Arg Ala Ala Ala His His His His His His Gly  
 225 230 235 240

Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala  
 245 250 255

<210> 59

<211> 255

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 single chain Fv format

<400> 59

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110

Leu Thr Val Ser Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro  
 115 120 125

Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser  
 130 135 140

Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys  
 145 150 155 160

Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala  
 165 170 175

Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe  
 180 185 190

Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr  
 195 200 205

Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys  
 210 215 220

Leu Glu Ile Lys Arg Ala Ala Ala His His His His His His Gly Ala  
 225 230 235 240

Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala  
 245 250 255

<210> 60

<211> 219

<212> PRT

<213> Mus musculus

<400> 60

Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly  
 1 5 10 15

Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser  
 20 25 30

Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser  
 35 40 45

Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro  
 50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
 65 70 75 80

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly  
 85 90 95

Ser His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys  
 100 105 110

Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Glu  
 115 120 125

Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe  
 130 135 140

Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg  
 145 150 155 160

Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser  
 165 170 175

Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu  
 180 185 190

Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser  
 195 200 205

Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys  
 210 215

<210> 61  
 <211> 219  
 <212> PRT  
 <213> Mus musculus

<400> 61  
 Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly  
   1                  5                  10                  15  
 Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser  
                   20                  25                  30  
 Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser  
           35                  40                  45  
 Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro  
       50                  55                  60  
 Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile  
   65                  70                  75                  80  
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn  
                   85                  90                  95  
 Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys  
           100                  105                  110  
 Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Glu  
       115                  120                  125  
 Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe  
   130                  135                  140  
 Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg  
 145                  150                  155                  160  
 Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser  
           165                  170                  175  
 Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu  
           180                  185                  190  
 Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser  
       195                  200                  205  
 Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys  
   210                  215

<210> 62  
 <211> 441  
 <212> PRT  
 <213> Mus musculus

&lt;400&gt; 62

Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly		
1				5					10					15			
Ser	Met	Lys	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asp	Ala		
			20					25					30				
Trp	Met	Asp	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val		
		35					40					45					
Ala	Glu	Ile	Arg	Ser	Lys	Ala	Asn	Asn	His	Ala	Thr	Tyr	Tyr	Ala	Glu		
	50					55					60						
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Val	Ser	Lys	Ser	Ser		
65					70					75					80		
Val	Tyr	Leu	Gln	Met	Asn	Asn	Leu	Arg	Ala	Glu	Asp	Thr	Gly	Ile	Tyr		
				85					90					95			
Tyr	Cys	Thr	Arg	Gly	Gly	Tyr	Gly	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr		
			100					105					110				
Thr	Leu	Thr	Val	Ser	Ala	Lys	Thr	Thr	Pro	Pro	Ser	Val	Tyr	Pro	Leu		
		115					120					125					
Ala	Pro	Gly	Ser	Ala	Ala	Gln	Thr	Asn	Ser	Met	Val	Thr	Leu	Gly	Cys		
	130					135					140						
Leu	Val	Lys	Gly	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Thr	Trp	Asn	Ser		
145					150					155					160		
Gly	Ser	Leu	Ser	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Glu	Ser		
				165					170					175			
Asp	Leu	Tyr	Thr	Leu	Ser	Ser	Ser	Val	Thr	Val	Pro	Ser	Ser	Pro	Arg		
			180					185					190				
Pro	Ser	Glu	Thr	Val	Thr	Cys	Asn	Val	Ala	His	Pro	Ala	Ser	Ser	Thr		
		195					200					205					
Lys	Val	Asp	Lys	Lys	Ile	Val	Pro	Arg	Asp	Cys	Gly	Cys	Lys	Pro	Cys		
	210					215					220						
Ile	Cys	Thr	Val	Pro	Glu	Val	Ser	Ser	Val	Phe	Ile	Phe	Pro	Pro	Lys		
225					230					235					240		
Pro	Lys	Asp	Val	Leu	Thr	Ile	Thr	Leu	Thr	Pro	Lys	Val	Thr	Cys	Val		
				245					250					255			
Val	Val	Asp	Ile	Ser	Lys	Asp	Asp	Pro	Glu	Val	Gln	Phe	Ser	Trp	Phe		
			260					265					270				
Val	Asp	Asp	Val	Glu	Val	His	Thr	Ala	Gln	Thr	Gln	Pro	Arg	Glu	Glu		
		275					280					285					
Gln	Phe	Asn	Ser	Thr	Phe	Arg	Ser	Val	Ser	Glu	Leu	Pro	Ile	Met	His		
	290					295					300						

Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala  
 305 310 315 320  
 Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg  
 325 330 335  
 Pro Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met  
 340 345 350  
 Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro  
 355 360 365  
 Glu Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn  
 370 375 380  
 Tyr Lys Asn Thr Gln Pro Ile Met Asn Thr Asn Gly Ser Tyr Phe Val  
 385 390 395 400  
 Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr  
 405 410 415  
 Phe Thr Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr Glu  
 420 425 430  
 Lys Ser Leu Ser His Ser Pro Gly Lys  
 435 440

<210> 63  
 <211> 440  
 <212> PRT  
 <213> Mus musculus

<400> 63  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Leu Thr Val Ser Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala  
 115 120 125



Pro	Gly	Ser	Ala	Ala	Gln	Thr	Asn	Ser	Met	Val	Thr	Leu	Gly	Cys	Leu	130	135	140	
Val	Lys	Gly	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Thr	Trp	Asn	Ser	Gly	145	150	155	160
Ser	Leu	Ser	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Glu	Ser	Asp	165	170	175	
Leu	Tyr	Thr	Leu	Ser	Ser	Ser	Val	Thr	Val	Pro	Ser	Ser	Pro	Arg	Pro	180	185	190	
Ser	Glu	Thr	Val	Thr	Cys	Asn	Val	Ala	His	Pro	Ala	Ser	Ser	Thr	Lys	195	200	205	
Val	Asp	Lys	Lys	Ile	Val	Pro	Arg	Asp	Cys	Gly	Cys	Lys	Pro	Cys	Ile	210	215	220	
Cys	Thr	Val	Pro	Glu	Val	Ser	Ser	Val	Phe	Ile	Phe	Pro	Pro	Lys	Pro	225	230	235	240
Lys	Asp	Val	Leu	Thr	Ile	Thr	Leu	Thr	Pro	Lys	Val	Thr	Cys	Val	Val	245	250	255	
Val	Asp	Ile	Ser	Lys	Asp	Asp	Pro	Glu	Val	Gln	Phe	Ser	Trp	Phe	Val	260	265	270	
Asp	Asp	Val	Glu	Val	His	Thr	Ala	Gln	Thr	Gln	Pro	Arg	Glu	Glu	Gln	275	280	285	
Phe	Asn	Ser	Thr	Phe	Arg	Ser	Val	Ser	Glu	Leu	Pro	Ile	Met	His	Gln	290	295	300	
Asp	Trp	Leu	Asn	Gly	Lys	Glu	Phe	Lys	Cys	Arg	Val	Asn	Ser	Ala	Ala	305	310	315	320
Phe	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Thr	Lys	Gly	Arg	Pro	325	330	335	
Lys	Ala	Pro	Gln	Val	Tyr	Thr	Ile	Pro	Pro	Pro	Lys	Glu	Gln	Met	Ala	340	345	350	
Lys	Asp	Lys	Val	Ser	Leu	Thr	Cys	Met	Ile	Thr	Asp	Phe	Phe	Pro	Glu	355	360	365	
Asp	Ile	Thr	Val	Glu	Trp	Gln	Trp	Asn	Gly	Gln	Pro	Ala	Glu	Asn	Tyr	370	375	380	
Lys	Asn	Thr	Gln	Pro	Ile	Met	Asn	Thr	Asn	Gly	Ser	Tyr	Phe	Val	Tyr	385	390	395	400
Ser	Lys	Leu	Asn	Val	Gln	Lys	Ser	Asn	Trp	Glu	Ala	Gly	Asn	Thr	Phe	405	410	415	
Thr	Cys	Ser	Val	Leu	His	Glu	Gly	Leu	His	Asn	His	His	Thr	Glu	Lys	420	425	430	

Ser Leu Ser His Ser Pro Gly Lys  
 435 440

<210> 64  
 <211> 447  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 mouse/human chimeric heavy chain

<400> 64  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
 20 25 30  
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
 65 70 75 80  
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
 100 105 110  
 Thr Leu Thr Val Ser Gly Ser Thr Lys Gly Pro Ser Val Phe Pro Leu  
 115 120 125  
 Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys  
 130 135 140  
 Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser  
 145 150 155 160  
 Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser  
 165 170 175  
 Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser  
 180 185 190  
 Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn  
 195 200 205  
 Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His  
 210 215 220  
 Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val  
 225 230 235 240

Phe	Leu	Phe	Pro	Pro 245	Lys	Pro	Lys	Asp	Thr 250	Leu	Met	Ile	Ser	Arg 255	Thr
Pro	Glu	Val	Thr 260	Cys	Val	Val	Val	Asp 265	Val	Ser	His	Glu	Asp 270	Pro	Glu
Val	Lys	Phe 275	Asn	Trp	Tyr	Val	Asp 280	Gly	Val	Glu	Val	His 285	Asn	Ala	Lys
Thr	Lys 290	Pro	Arg	Glu	Glu	Gln 295	Tyr	Asn	Ser	Thr	Tyr 300	Arg	Val	Val	Ser
Val 305	Leu	Thr	Val	Leu	His 310	Gln	Asp	Trp	Leu	Asn 315	Gly	Lys	Glu	Tyr	Lys 320
Cys	Lys	Val	Ser	Asn 325	Lys	Ala	Leu	Pro	Ala 330	Pro	Ile	Glu	Lys	Thr 335	Ile
Ser	Lys	Ala	Lys 340	Gly	Gln	Pro	Arg	Glu 345	Pro	Gln	Val	Tyr	Thr 350	Leu	Pro
Pro	Ser	Arg 355	Asp	Glu	Leu	Thr	Lys 360	Asn	Gln	Val	Ser	Leu 365	Thr	Cys	Leu
Val 370	Lys	Gly	Phe	Tyr	Pro	Ser 375	Asp	Ile	Ala	Val	Glu 380	Trp	Glu	Ser	Asn
Gly 385	Gln	Pro	Glu	Asn 390	Asn	Tyr	Lys	Thr	Thr	Pro 395	Pro	Val	Leu	Asp	Ser 400
Asp	Gly	Ser	Phe	Phe 405	Leu	Tyr	Ser	Lys	Leu 410	Thr	Val	Asp	Lys	Ser 415	Arg
Trp	Gln	Gln	Gly 420	Asn	Val	Phe	Ser	Cys 425	Ser	Val	Met	His	Glu 430	Ala	Leu
His	Asn	His 435	Tyr	Thr	Gln	Lys	Ser 440	Leu	Ser	Leu	Ser	Pro 445	Gly	Lys	

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<210> 65
<211> 446
<212> PRT
<213> Artificial Sequence
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<220>  
<223> Description of Artificial Sequence: Synthetic mouse/human chimeric heavy chain

<400> 65  
Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15  
Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
20 25 30

Trp	Met	Asn	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val
		35					40					45			
Ala	Glu	Ile	Arg	Leu	Lys	Ser	Asn	Asn	Tyr	Thr	Thr	His	Tyr	Ala	Glu
	50					55					60				
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asp	Ser	Lys	Ser	Ser
65					70					75					80
Val	Ser	Leu	Gln	Met	Asn	Asn	Leu	Arg	Val	Glu	Asp	Thr	Gly	Ile	Trp
				85					90					95	
Tyr	Cys	Thr	Arg	His	Tyr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Thr
			100					105					110		
Leu	Thr	Val	Ser	Gly	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala
		115					120					125			
Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu
						135					140				
Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly
145					150					155					160
Ala	Leu	Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser
				165					170					175	
Gly	Leu	Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu
			180					185					190		
Gly	Thr	Gln	Thr	Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr
		195					200					205			
Lys	Val	Asp	Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr
		210				215					220				
Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe
225					230					235					240
Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro
				245					250					255	
Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val
			260					265					270		
Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr
		275					280					285			
Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val
		290				295					300				
Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys
305					310					315					320
Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser
				325					330					335	

Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro  
                     340                    345                    350  
 Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val  
                     355                    360                    365  
 Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly  
                     370                    375                    380  
 Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp  
                     385                    390                    395                    400  
 Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp  
                     405                    410                    415  
 Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His  
                     420                    425                    430  
 Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys  
                     435                    440                    445

<210> 66

<211> 570

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
mouse/human chimeric heavy chain

<400> 66

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                    5                    10                    15  
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala  
                     20                    25                    30  
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                     35                    40                    45  
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu  
                     50                    55                    60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser  
                     65                    70                    75                    80  
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr  
                     85                    90                    95  
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr  
                     100                    105                    110  
 Thr Leu Thr Val Ser Gly Ser Ala Ser Ala Pro Thr Leu Phe Pro Leu  
                     115                    120                    125  
 Val Ser Cys Glu Asn Ser Pro Ser Asp Thr Ser Ser Val Ala Val Gly  
                     130                    135                    140

Cys	Leu	Ala	Gln	Asp	Phe	Leu	Pro	Asp	Ser	Ile	Thr	Leu	Ser	Trp	Lys	145	150	155	160
Tyr	Lys	Asn	Asn	Ser	Asp	Ile	Ser	Ser	Thr	Arg	Gly	Phe	Pro	Ser	Val	165	170	175	
Leu	Arg	Gly	Gly	Lys	Tyr	Ala	Ala	Thr	Ser	Gln	Val	Leu	Leu	Pro	Ser	180	185	190	
Lys	Asp	Val	Met	Gln	Gly	Thr	Asp	Glu	His	Val	Val	Cys	Lys	Val	Gln	195	200	205	
His	Pro	Asn	Gly	Asn	Lys	Glu	Lys	Asn	Val	Pro	Leu	Pro	Val	Ile	Ala	210	215	220	
Glu	Leu	Pro	Pro	Lys	Val	Ser	Val	Phe	Val	Pro	Pro	Arg	Asp	Gly	Phe	225	230	235	240
Phe	Gly	Asn	Pro	Arg	Lys	Ser	Lys	Leu	Ile	Cys	Gln	Ala	Thr	Gly	Phe	245	250	255	
Ser	Pro	Arg	Gln	Ile	Gln	Val	Ser	Trp	Leu	Arg	Glu	Gly	Lys	Gln	Val	260	265	270	
Gly	Ser	Gly	Val	Thr	Thr	Asp	Gln	Val	Gln	Ala	Glu	Ala	Lys	Glu	Ser	275	280	285	
Gly	Pro	Thr	Thr	Tyr	Lys	Val	Thr	Ser	Thr	Leu	Thr	Ile	Lys	Glu	Ser	290	295	300	
Asp	Trp	Leu	Gly	Gln	Ser	Met	Phe	Thr	Cys	Arg	Val	Asp	His	Arg	Gly	305	310	315	320
Leu	Thr	Phe	Gln	Gln	Asn	Ala	Ser	Ser	Met	Cys	Val	Pro	Asp	Gln	Asp	325	330	335	
Thr	Ala	Ile	Arg	Val	Phe	Ala	Ile	Pro	Pro	Ser	Phe	Ala	Ser	Ile	Phe	340	345	350	
Leu	Thr	Lys	Ser	Thr	Lys	Leu	Thr	Cys	Leu	Val	Thr	Asp	Leu	Thr	Thr	355	360	365	
Tyr	Asp	Ser	Val	Thr	Ile	Ser	Trp	Thr	Arg	Gln	Asn	Gly	Glu	Ala	Val	370	375	380	
Lys	Thr	His	Thr	Asn	Ile	Ser	Glu	Ser	His	Pro	Asn	Ala	Thr	Phe	Ser	385	390	395	400
Ala	Val	Gly	Glu	Ala	Ser	Ile	Cys	Glu	Asp	Asp	Trp	Asn	Ser	Gly	Glu	405	410	415	
Arg	Phe	Thr	Cys	Thr	Val	Thr	His	Thr	Asp	Leu	Pro	Ser	Pro	Leu	Lys	420	425	430	
Gln	Thr	Ile	Ser	Arg	Pro	Lys	Gly	Val	Ala	Leu	His	Arg	Pro	Asp	Val	435	440	445	

Tyr Leu Leu Pro Pro Ala Arg Glu Gln Leu Asn Leu Arg Glu Ser Ala  
 450 455 460  
 Thr Ile Thr Cys Leu Val Thr Gly Phe Ser Pro Ala Asp Val Phe Val  
 465 470 475 480  
 Gln Trp Met Gln Arg Gly Gln Pro Leu Ser Pro Glu Lys Tyr Val Thr  
 485 490 495  
 Ser Ala Pro Met Pro Glu Pro Gln Ala Pro Gly Arg Tyr Phe Ala His  
 500 505 510  
 Ser Ile Leu Thr Val Ser Glu Glu Glu Trp Asn Thr Gly Glu Thr Tyr  
 515 520 525  
 Thr Cys Val Val Ala His Glu Ala Leu Pro Asn Arg Val Thr Glu Arg  
 530 535 540  
 Thr Val Asp Lys Ser Thr Gly Lys Pro Thr Leu Tyr Asn Val Ser Leu  
 545 550 555 560  
 Val Met Ser Asp Thr Ala Gly Thr Cys Tyr  
 565 570

<210> 67

<211> 569

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
mouse/human chimeric heavy chain

<400> 67

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30  
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
 35 40 45  
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu  
 50 55 60  
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser  
 65 70 75 80  
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr  
 85 90 95  
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr  
 100 105 110  
 Leu Thr Val Ser Gly Ser Ala Ser Ala Pro Thr Leu Phe Pro Leu Val  
 115 120 125

Ser	Cys	Glu	Asn	Ser	Pro	Ser	Asp	Thr	Ser	Ser	Val	Ala	Val	Gly	Cys		
	130						135					140					
Leu	Ala	Gln	Asp	Phe	Leu	Pro	Asp	Ser	Ile	Thr	Leu	Ser	Trp	Lys	Tyr		
145					150					155					160		
Lys	Asn	Asn	Ser	Asp	Ile	Ser	Ser	Thr	Arg	Gly	Phe	Pro	Ser	Val	Leu		
				165					170					175			
Arg	Gly	Gly	Lys	Tyr	Ala	Ala	Thr	Ser	Gln	Val	Leu	Leu	Pro	Ser	Lys		
			180					185					190				
Asp	Val	Met	Gln	Gly	Thr	Asp	Glu	His	Val	Val	Cys	Lys	Val	Gln	His		
		195					200					205					
Pro	Asn	Gly	Asn	Lys	Glu	Lys	Asn	Val	Pro	Leu	Pro	Val	Ile	Ala	Glu		
	210					215					220						
Leu	Pro	Pro	Lys	Val	Ser	Val	Phe	Val	Pro	Pro	Arg	Asp	Gly	Phe	Phe		
225					230					235					240		
Gly	Asn	Pro	Arg	Lys	Ser	Lys	Leu	Ile	Cys	Gln	Ala	Thr	Gly	Phe	Ser		
				245					250					255			
Pro	Arg	Gln	Ile	Gln	Val	Ser	Trp	Leu	Arg	Glu	Gly	Lys	Gln	Val	Gly		
		260						265					270				
Ser	Gly	Val	Thr	Thr	Asp	Gln	Val	Gln	Ala	Glu	Ala	Lys	Glu	Ser	Gly		
		275					280					285					
Pro	Thr	Thr	Tyr	Lys	Val	Thr	Ser	Thr	Leu	Thr	Ile	Lys	Glu	Ser	Asp		
	290					295					300						
Trp	Leu	Gly	Gln	Ser	Met	Phe	Thr	Cys	Arg	Val	Asp	His	Arg	Gly	Leu		
305					310					315					320		
Thr	Phe	Gln	Gln	Asn	Ala	Ser	Ser	Met	Cys	Val	Pro	Asp	Gln	Asp	Thr		
				325					330					335			
Ala	Ile	Arg	Val	Phe	Ala	Ile	Pro	Pro	Ser	Phe	Ala	Ser	Ile	Phe	Leu		
		340						345					350				
Thr	Lys	Ser	Thr	Lys	Leu	Thr	Cys	Leu	Val	Thr	Asp	Leu	Thr	Thr	Tyr		
		355					360					365					
Asp	Ser	Val	Thr	Ile	Ser	Trp	Thr	Arg	Gln	Asn	Gly	Glu	Ala	Val	Lys		
	370					375					380						
Thr	His	Thr	Asn	Ile	Ser	Glu	Ser	His	Pro	Asn	Ala	Thr	Phe	Ser	Ala		
385					390					395					400		
Val	Gly	Glu	Ala	Ser	Ile	Cys	Glu	Asp	Asp	Trp	Asn	Ser	Gly	Glu	Arg		
				405					410					415			
Phe	Thr	Cys	Thr	Val	Thr	His	Thr	Asp	Leu	Pro	Ser	Pro	Leu	Lys	Gln		
			420					425					430				



Thr Ile Ser Arg Pro Lys Gly Val Ala Leu His Arg Pro Asp Val Tyr  
 435 440 445  
 Leu Leu Pro Pro Ala Arg Glu Gln Leu Asn Leu Arg Glu Ser Ala Thr  
 450 455 460  
 Ile Thr Cys Leu Val Thr Gly Phe Ser Pro Ala Asp Val Phe Val Gln  
 465 470 475 480  
 Trp Met Gln Arg Gly Gln Pro Leu Ser Pro Glu Lys Tyr Val Thr Ser  
 485 490 495  
 Ala Pro Met Pro Glu Pro Gln Ala Pro Gly Arg Tyr Phe Ala His Ser  
 500 505 510  
 Ile Leu Thr Val Ser Glu Glu Glu Trp Asn Thr Gly Glu Thr Tyr Thr  
 515 520 525  
 Cys Val Val Ala His Glu Ala Leu Pro Asn Arg Val Thr Glu Arg Thr  
 530 535 540  
 Val Asp Lys Ser Thr Gly Lys Pro Thr Leu Tyr Asn Val Ser Leu Val  
 545 550 555 560  
 Met Ser Asp Thr Ala Gly Thr Cys Tyr  
 565

<210> 68

<211> 219

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
mouse/human chimeric light chain

<400> 68

Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly  
 1 5 10 15  
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser  
 20 25 30  
 Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser  
 35 40 45  
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro  
 50 55 60  
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile  
 65 70 75 80  
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly  
 85 90 95  
 Ser His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys  
 100 105 110

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu  
 115 120 125  
 Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe  
 130 135 140  
 Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln  
 145 150 155 160  
 Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser  
 165 170 175  
 Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu  
 180 185 190  
 Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser  
 195 200 205  
 Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys  
 210 215

<210> 69  
 <211> 219  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 mouse/human chimeric light chain

<400> 69  
 Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly  
 1 5 10 15  
 Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser  
 20 25 30  
 Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser  
 35 40 45  
 Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro  
 50 55 60  
 Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile  
 65 70 75 80  
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn  
 85 90 95  
 Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys  
 100 105 110  
 Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu  
 115 120 125

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe  
 130 135 140

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln  
 145 150 155 160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser  
 165 170 175

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu  
 180 185 190

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser  
 195 200 205

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys  
 210 215

<210> 70

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 peptide

<400> 70

Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala  
 1 5 10 15

Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala  
 20 25 30

<210> 71

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
 peptide

<220>

<221> MOD\_RES

<222> (13)

<223> Thr(GalNAc-alpha)

<400> 71

Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala  
 1 5 10 15

Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala  
 20 25 30

<210> 72  
 <211> 100  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <221> MOD\_RES  
 <222> (21)..(60)  
 <223> Region may or may not be present

<220>  
 <221> MOD\_RES  
 <222> (61)..(100)  
 <223> Region may or may not be present

<400> 72  
 Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro  
     1                    5                    10                    15  
 Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly  
             20                    25                    30  
 Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg  
             35                    40                    45  
 Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala  
             50                    55                    60  
 Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly  
             65                    70                    75                    80  
 Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro  
             85                    90                    95  
 Pro Ala His Gly  
             100

<210> 73  
 <211> 101  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <221> MOD\_RES  
 <222> (10)  
 <223> Thr(GalNAc-alpha)

<220>  
 <221> MOD\_RES  
 <222> (22)..(61)  
 <223> region may or may not be present

<220>  
 <221> MOD\_RES  
 <222> (30)  
 <223> Thr(GalNAc-alpha), if present

<220>  
 <221> MOD\_RES  
 <222> (50)  
 <223> Thr(GalNAc-alpha), if present

<220>  
 <221> MOD\_RES  
 <222> (62)..(101)  
 <223> region may or may not be present

<220>  
 <221> MOD\_RES  
 <222> (70)  
 <223> Thr(GalNAc-alpha), if present

<220>  
 <221> MOD\_RES  
 <222> (90)  
 <223> Thr(GalNAc-alpha), if present

<400> 73  
 Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser  
     1                    5                    10                    15  
 Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro  
                     20                    25                    30  
 Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro  
                     35                    40                    45  
 Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val  
                     50                    55                    60  
 Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro  
                     65                    70                    75                    80  
 Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser  
                     85                    90                    95  
 Thr Ala Pro Pro Ala  
                     100

<210> 74  
 <211> 29  
 <212> PRT  
 <213> Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic peptide

&lt;400&gt; 74

Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala  
 1 5 10 15

Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser  
 20 25

&lt;210&gt; 75

&lt;211&gt; 27

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic primer

&lt;400&gt; 75

aattggatcc gagcccagac actggac

27

&lt;210&gt; 76

&lt;211&gt; 27

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic primer

&lt;400&gt; 76

accgtctaga cgactcatt taccggg

27

&lt;210&gt; 77

&lt;211&gt; 30

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Synthetic primer

&lt;400&gt; 77

acctggatcc gctaggaaga aactcaaaac

30

&lt;210&gt; 78

&lt;211&gt; 30

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic primer  
  
 <400> 78  
 accgtctaga ccctctaaca ctctcccctg 30  
  
 <210> 79  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic primer  
  
 <400> 79  
 atcgggatcc gatagccatg acagtctg 28  
  
 <210> 80  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic primer  
  
 <400> 80  
 agcgtctaga cagggtcagt agcagg 26  
  
 <210> 81  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic peptide  
  
 <400> 81  
 Pro Asp Thr Arg Pro  
 1 5  
  
 <210> 82  
 <211> 118  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: Synthetic variable heavy chain construct

<220>  
 <221> MOD\_RES  
 <222> (23)  
 <223> Ala or Val

<220>  
 <221> MOD\_RES  
 <222> (24)  
 <223> Ala, Val, Ser, or Thr

<220>  
 <221> MOD\_RES  
 <222> (27)  
 <223> Tyr, Phe, Ser, or Asp

<220>  
 <221> MOD\_RES  
 <222> (29)  
 <223> Phe, Leu, or Ile

<220>  
 <221> MOD\_RES  
 <222> (31)..(35)  
 <223> this region may encompass either SEQ ID NO: 1, SEQ ID NO: 2, or variants thereof

<220>  
 <221> MOD\_RES  
 <222> (50)..(68)  
 <223> this region may encompass either SEQ ID NO: 3, SEQ ID NO: 4, or variants thereof

<220>  
 <221> MOD\_RES  
 <222> (76)  
 <223> Asp or Val

<220>  
 <221> MOD\_RES  
 <222> (82)  
 <223> Tyr or Ser

<220>  
 <221> MOD\_RES  
 <222> (90)  
 <223> Ala or Val

<220>  
 <221> MOD\_RES  
 <222> (100)  
 <223> Arg, Gly, Asn, Lys, or Ser

<220>  
 <221> MOD\_RES  
 <222> (101)..(106)  
 <223> this region may encompass either residues 1-6 of SEQ ID NO: 5, SEQ ID NO: 6, or variants thereof



<220>  
 <221> MOD\_RES  
 <222> (107)  
 <223> Tyr or not present

<220>  
 <221> MOD\_RES  
 <222> (118)  
 <223> Ser or Ala

<400> 82  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
           1                          5                          10                          15  
 Ser Met Lys Leu Ser Cys Xaa Xaa Ser Gly Xaa Thr Xaa Ser Xaa Xaa  
                   20                          25                          30  
 Xaa Xaa Xaa Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val  
                   35                          40                          45  
 Ala Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
           50                          55                          60  
 Xaa Xaa Xaa Xaa Arg Phe Thr Ile Ser Arg Asp Xaa Ser Lys Ser Ser  
           65                          70                          75                          80  
 Val Xaa Leu Gln Met Asn Asn Leu Arg Xaa Glu Asp Thr Gly Ile Tyr  
                   85                          90                          95  
 Tyr Cys Thr Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Gly Gln Gly Thr  
                   100                          105                          110  
 Thr Leu Thr Val Ser Xaa  
           115

<210> 83  
 <211> 114  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
           variable light chain construct

<220>  
 <221> MOD\_RES  
 <222> (2)  
 <223> Ile, Val, or Leu

<220>  
 <221> MOD\_RES  
 <222> (4)  
 <223> Met or Leu

<220>  
<221> MOD\_RES  
<222> (7)  
<223> Thr or Ala

<220>  
<221> MOD\_RES  
<222> (8)  
<223> Pro or Ala

<220>  
<221> MOD\_RES  
<222> (9)  
<223> Leu or Phe

<220>  
<221> MOD\_RES  
<222> (11)  
<223> Leu or Asn

<220>  
<221> MOD\_RES  
<222> (14)  
<223> Ser or Thr

<220>  
<221> MOD\_RES  
<222> (17)  
<223> Asp or Thr

<220>  
<221> MOD\_RES  
<222> (18)  
<223> Gln or Ser

<220>  
<221> MOD\_RES  
<222> (24)..(39)  
<223> this region may encompass either SEQ ID NO: 7, SEQ ID  
NO: 8, or variants thereof

<220>  
<221> MOD\_RES  
<222> (47)  
<223> Gln or Leu

<220>  
<221> MOD\_RES  
<222> (50)  
<223> Lys or Gln

<220>  
<221> MOD\_RES  
<222> (53)  
<223> Ile or Val

<220>  
 <221> MOD\_RES  
 <222> (55)..(61)  
 <223> this region may encompass either SEQ ID NO: 9, SEQ ID  
 NO: 10, or variants thereof

<220>  
 <221> MOD\_RES  
 <222> (69)  
 <223> Gly or Ser

<220>  
 <221> MOD\_RES  
 <222> (79)  
 <223> Lys or Arg

<220>  
 <221> MOD\_RES  
 <222> (88)  
 <223> Leu or Val

<220>  
 <221> MOD\_RES  
 <222> (94)..(102)  
 <223> this region may encompass either SEQ ID NO: 11, SEQ ID  
 NO: 12, or variants thereof

<220>  
 <221> MOD\_RES  
 <222> (105)  
 <223> Gly or Asp

<220>  
 <221> MOD\_RES  
 <222> (111)  
 <223> Ile or Leu

<400> 83  
 Asp Xaa Val Xaa Thr Gln Xaa Xaa Xaa Ser Xaa Pro Val Xaa Leu Gly  
 1 5 10 15  
 Xaa Xaa Ala Ser Ile Ser Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 20 25 30  
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Tyr Leu Gln Lys Pro Gly Xaa Ser  
 35 40 45  
 Pro Xaa Leu Leu Xaa Tyr Xaa Xaa Xaa Xaa Xaa Xaa Xaa Gly Val Pro  
 50 55 60  
 Asp Arg Phe Ser Xaa Ser Gly Ser Gly Thr Asp Phe Thr Leu Xaa Ile  
 65 70 75 80  
 Ser Arg Val Glu Ala Glu Asp Xaa Gly Val Tyr Tyr Cys Xaa Xaa Xaa  
 85 90 95  
 Xaa Xaa Xaa Xaa Xaa Xaa Phe Gly Xaa Gly Thr Lys Leu Glu Xaa Lys  
 100 105 110

Arg Ala

<210> 84  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 antibody framework heavy chain sequence

<220>  
 <221> MOD\_RES  
 <222> (23)  
 <223> Ala or Val

<220>  
 <221> MOD\_RES  
 <222> (24)  
 <223> Ala, Val, Ser, or Thr

<220>  
 <221> MOD\_RES  
 <222> (27)  
 <223> Tyr, Phe, Ser, or Asp

<220>  
 <221> MOD\_RES  
 <222> (29)  
 <223> Phe, Leu, or Ile

<400> 84  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
       1                  5                  10                  15

Ser Met Lys Leu Ser Cys Xaa Xaa Ser Gly Xaa Thr Xaa Ser  
           20                  25                  30

<210> 85  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 antibody framework heavy chain sequence

<400> 85  
 Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val Ala  
       1                  5                  10

<210> 86  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 antibody framework heavy chain sequence

<220>  
 <221> MOD\_RES  
 <222> (8)  
 <223> Asp or Val

<220>  
 <221> MOD\_RES  
 <222> (14)  
 <223> Tyr or Ser

<220>  
 <221> MOD\_RES  
 <222> (22)  
 <223> Ala or Val

<220>  
 <221> MOD\_RES  
 <222> (32)  
 <223> Arg, Gly, Asn, Lys, or Ser

<400> 86  
 Arg Phe Thr Ile Ser Arg Asp Xaa Ser Lys Ser Ser Val Xaa Leu Gln  
           1                  5                  10                  15

Met Asn Asn Leu Arg Xaa Glu Asp Thr Gly Ile Tyr Tyr Cys Thr Xaa  
                   20                  25                  30

<210> 87  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 antibody framework heavy chain sequence

<220>  
 <221> MOD\_RES  
 <222> (11)  
 <223> Ser or Ala

<400> 87  
 Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Xaa  
           1                  5                  10



Xaa Xaa Ala Ser Ile Ser Cys  
20

<210> 89  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
antibody framework light chain sequence

<220>  
<221> MOD\_RES  
<222> (8)  
<223> Gln or Leu

<220>  
<221> MOD\_RES  
<222> (11)  
<223> Lys or Gln

<220>  
<221> MOD\_RES  
<222> (14)  
<223> Ile or Val

<400> 89  
Trp Tyr Leu Gln Lys Pro Gly Xaa Ser Pro Xaa Leu Leu Xaa Tyr  
1 5 10 15

<210> 90  
<211> 32  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
antibody framework light chain sequence

<220>  
<221> MOD\_RES  
<222> (8)  
<223> Gly or Ser

<220>  
<221> MOD\_RES  
<222> (18)  
<223> Lys or Arg

<220>  
<221> MOD\_RES  
<222> (27)  
<223> Leu or Val

<400> 90  
 Gly Val Pro Asp Arg Phe Ser Xaa Ser Gly Ser Gly Thr Asp Phe Thr  
           1                          5                          10                          15

Leu Xaa Ile Ser Arg Val Glu Ala Glu Asp Xaa Gly Val Tyr Tyr Cys  
                           20                          25                          30

<210> 91  
 <211> 12  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
           antibody framework light chain sequence

<220>  
 <221> MOD\_RES  
 <222> (3)  
 <223> Gly or Asp

<220>  
 <221> MOD\_RES  
 <222> (9)  
 <223> Ile or Leu

<400> 91  
 Phe Gly Xaa Gly Thr Lys Leu Glu Xaa Lys Arg Ala  
           1                          5                          10

<210> 92  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
           peptide

<220>  
 <221> MOD\_RES  
 <222> (4)  
 <223> Met, Ile, Val, Tyr or Trp

<400> 92  
 Asp Ala Trp Xaa Asp  
           1                          5

<210> 93  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence



<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <221> MOD\_RES  
 <222> (4)  
 <223> Met, Val, Ile, Tyr or Trp

<400> 93  
 Asn Tyr Trp Xaa Asn  
       1                      5

<210> 94  
 <211> 19  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <221> MOD\_RES  
 <222> (9)  
 <223> His or Tyr

<400> 94  
 Glu Ile Arg Ser Lys Ala Asn Asn Xaa Ala Thr Tyr Tyr Ala Glu Ser  
       1                      5                      10                      15

Val Lys Gly

<210> 95  
 <211> 19  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <221> MOD\_RES  
 <222> (8)  
 <223> Asn, Lys or Ser

<400> 95  
 Glu Ile Arg Leu Lys Ser Asn Xaa Tyr Thr Thr His Tyr Ala Glu Ser  
       1                      5                      10                      15

Val Lys Gly

<210> 96  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <221> MOD\_RES  
 <222> (2)  
 <223> Ser or Pro

<220>  
 <221> MOD\_RES  
 <222> (15)  
 <223> Leu or Phe

<400> 96  
 Arg Xaa Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Xaa Glu  
           1                          5                          10                          15

<210> 97  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
 <221> MOD\_RES  
 <222> (2)  
 <223> Ser or Pro

<220>  
 <221> MOD\_RES  
 <222> (15)  
 <223> Leu or Phe

<400> 97  
 Arg Xaa Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Xaa Phe  
           1                          5                          10                          15

<210> 98  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic peptide

<220>  
<221> MOD\_RES  
<222> (6)  
<223> Val or Pro

<400> 98  
Phe Gln Gly Ser His Xaa Pro Leu Thr  
1 5

<210> 99  
<211> 9  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<221> MOD\_RES  
<222> (6)  
<223> Leu or Pro

<400> 99  
Ala Gln Asn Leu Glu Xaa Pro Pro Thr  
1 5